

## Claims:

1. Process for the production of 4,4'-diaminodicyclohexylmethane (4,4'-HMDA) by catalytic hydrogenation of a mixture of substances containing  
5 4,4'-diaminodiphenylmethane (4,4'-MDA) as the main component and its mono-N-methyl derivative as a secondary component with increased selectivity with regard to the hydrogenation of 4,4'-MDA in the presence of a heterogeneous hydrogenation catalyst at a  
10 temperature in the range of 50 to 220°C and a hydrogen pressure in the range of 1 to 30 MPa, characterised in that the hydrogenation is terminated before a conversion of 4,4'-MDA to 4,4'-HMDA of 99% is achieved.
- 15 2. Process according to claim 1, characterised in that a crude MDA, containing at least 70 wt.% 4,4'-diaminodiphenylmethane and 0.01 to 2 wt.% N-methyl-4,4'-diaminodiphenylmethane, is used as the mixture of  
20 substances to be hydrogenated.
3. Process according to claim 2, characterised in that the mixture of substances to be hydrogenated contains 75 - 99 wt.% 4,4'-MDA, 1 - 11 wt.% 2,4'-MDA, less than  
25 2 wt.% 2,2'-MDA and up to 1 wt.% N-methyl-4,4'-MDA.
4. Process according to claims 1 to 3, characterised in that the hydrogenation of 4,4'-diaminodiphenylmethane to 4,4'-diaminodicyclohexylmethane is terminated at a  
30 conversion in the range of 90% to 98.9%, particularly 95 to 98%.
5. Process according to claims 1 to 4, characterised in that the hydrogenation is performed at a temperature in

the range of 90 to 150°C and a pressure in the range of 5 to 15 MPa.

6. Process according to one of claims 1 to 5, characterised in that an Ru-supported catalyst with an Ru content of 5 0.5 to 10 wt.% is used.
7. Process according to one of claims 1 to 6, characterised in that an Ru-aluminium oxide or Ru-titanium dioxide supported catalyst is used as the Ru supported catalyst, the support having a BET surface area of preferably less 10 than 70 m<sup>2</sup>/g.
8. Process according to one of claims 1 to 7, characterised in that the catalytic hydrogenation is performed in the presence of a solvent from the series of the ethers, particularly tetrahydrofuran.
- 15 9. Process according to one of claims 1 to 9, characterised in that the catalytic hydrogenation is performed in a continuous operating method in a fixed bed reactor packed with an Ru supported catalyst, wherein the reactor is operated by a trickle-bed method.